

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please AMEND claims 1, 7, 13 and 20 in accordance with the following:

1. (Currently Amended) A method of measuring a flying height comprising:  
~~rotating a disk~~

migrating a product to the surface of a disk from a base layer of the disk through a pinhole in the disk to form ~~having~~ at least one protrusion protruding higher than a minimum flying height of a head assembly, wherein a slider of the head assembly is subject to measurement of a flying height with respect to the disk;

rotating the disk;

cutting an upper end portion of the protrusion by the slider according to the rotation of the disk; and

measuring a height of the cut protrusion using a measurement apparatus,  
wherein the measurement apparatus is an atomic force microscopy (AFM),  
~~and the protrusion is formed by migrating a product to the surface of the disk from a base layer of the disk through a pinhole to form a corrosion product.~~

2. (Original) The method as claimed in claim 1, wherein the head assembly is a magnetic head assembly and the disk is a magnetic recording disk.

3-6. (Cancelled)

7. (Currently Amended) A system of measuring a flying height comprising:  
a head assembly subject to measurement of a flying height;  
a disk having a plurality of pinholes;  
at least one protrusion formed by migrating a product to the surface of the disk from a base layer of the disk through the pinholes, the protrusion protruding higher than a minimum flying height of the head assembly and floating a slider of the head assembly by rotation of the

disk so that an upper portion of the protrusion protruding higher than a flying height of the slider is cut by the slider; and

a measurement apparatus to measure a height of the protrusion cut by the slider of the head assembly floated according to the rotation of the disk,

wherein the measurement apparatus is an atomic force microscopy (AFM); and

~~the protrusion is formed by migrating a product to the surface of the disk from a base layer of the disk through a pinhole to form a corrosion product.~~

8. (Original) The system as claimed in claim 7, wherein the head assembly is a magnetic head assembly and the disk is a magnetic recording disk.

9-12. (Cancelled)

13. (Currently Amended) A method of determining the flying height of a slider of a head assembly comprising:

migrating a product to a surface of a disk from a base layer of the disk through a pinhole in the disk to form ~~forming~~ a protrusion having a height greater than a flying height of a slider of a head assembly on at the surface of at the disk;

cutting the protrusion on the surface of the disk with the slider of the head assembly during rotation of the disk to leave a cut protrusion on the surface of the disk;

determining an actual flying height of the slider of the head assembly based on the cut protrusion; and

estimating the flying height of the slider of the magnetic head assembly prior to forming the protrusion on the surface of the disk;

~~wherein the forming of the protrusion comprises migrating a product to the surface of the disk from a base layer of the disk through a pinhole to form a corrosion product.~~

14. (Cancelled)

15. (Original) The method of claim 13, wherein the determining of the actual flying height comprises measuring the cut protrusion with an AFM.

16. (Cancelled)

17. (Previously Presented) The method of claim 13, wherein the determining of the actual flying height comprises measuring the cut protrusion with a scanning probe microscopy.

18. (Original) The method of claim 13, further comprising:  
installing the disk having protrusions formed on the surface in a hard disk drive having the slider of the head assembly; and  
removing the disk from the hard disk drive after the cutting of the protrusion and prior to the determining of the actual flying height of the slider.

19. (Original) The method of claim 18, wherein the hard disk drive includes a plurality of disks having protrusions formed on the surface and a plurality of sliders corresponding to the plurality of disks.

20. (Currently Amended) A head flying height measurement apparatus comprising:  
a disk having a plurality of pinholes and a plurality of protrusions formed by migrating a product to the surface of the disk from a base layer of the disk through the pinholes to form a corrosion product, the protrusion having with a height greater than an estimated flying height of a slider formed on a surface of the disk;

a head assembly of a disk drive having a magnetic head and a slider disposed at an end of the head assembly, wherein the slider floats above the disk when the disk is rotated and cuts the protrusions to leave a portion of each protrusion below a bottom edge of the slider on the surface of the disk; and

a measurement device, wherein the measurement device measures a height of the portion of the protrusions remaining on the surface of the disk that corresponds to a flying height of the slider; and

~~forming the protrusions on the surface of the disk by migrating a product to the surface of the disk from a base layer of the disk through a plurality of pinholes to form a corrosion product,~~  
wherein the measurement device comprises an AFM.

21-22. (Cancelled)